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WHAT IS CLAIMED IS:

1. A method for diminishing effects of optical defects and deviations during real time use of an optical device, comprising the steps of:

(a) providing an optical rotation device for rotating at least one optical part of the optical device during real time use of the optical device; and

(b) rotating said at least one optical part of the optical device about a rotation axis during real time use of the optical device, by activating and controlling said optical rotation device, thereby spreading and blurring about said rotation axis the optical defects and the deviations present in said at least one optical part of the optical device.

2. The method of claim 1, whereby said at least one optical part of the optical device is selected from the group consisting of the optical device in its entirety, at least one optical assembly of the optical device, and at least one optical element of the optical device.

3. The method of claim 1, whereby said at least one optical part of the optical device exhibits a property selected from the group consisting of rotation invariance and rotation variance.

4. The method of claim 2, wherein said optical element is selected from the group consisting of a window, a lens, a mirror, and a prism, wherein said lens includes a convex lens and a concave lens, said mirror includes a flat mirror, a part-mirror, and a parabolic mirror, and said prism includes a beam splitter and a dove prism.

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5. The method of claim 1, whereby the step of rotating said at least one optical part of the optical device is effected according to two rotation parameters, said two rotation parameters are rotation mode and rotation speed, said rotation mode is selected from the group consisting of discontinuous rotation and continuous rotation.

6. The method of claim 5, whereby said discontinuous rotation mode features the steps of:

(i) discontinuously rotating said at least one optical part of the device through a full circle of 360 degrees, with a whole number of stops selected from the group consisting of two and greater than two, at spaced angular intervals selected from the group consisting of unequally spaced and equally spaced, whereby at each said stop a new image is produced;

(ii) performing image analysis on each said new image, thereby generating a set of analyzed images; and

(iii) numerically processing said set of analyzed images according to an algorithm, said algorithm including averaging, to produce a single combined image analysis result.

7. The method of claim 5, whereby said continuous rotation mode is selected from the group consisting of asynchronous rotation and synchronous rotation, with respect to exposure time of a peripheral mechanism of the optical device, said peripheral mechanism is selected from the group consisting of a viewing mechanism and a projecting mechanism, said viewing mechanism includes a camera, and said projecting mechanism includes a radiation source.

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8. The method of claim 7, whereby said asynchronous rotation with respect to said exposure time of said peripheral mechanism features the step of rotating said at least one optical part of the optical device a number of rotations during said exposure time, said number of rotations is selected from the group consisting of a single rotation, a fraction of said single rotation, and a plurality of said single rotation, thereby spreading and blurring the optical defects and the deviations of said at least one optical part of the optical device over at least a portion of a circle.

9. The method of claim 7, whereby said synchronous rotation with respect to said exposure time of said peripheral mechanism features the step of rotating said at least one optical part of the optical device at a constant angular rotation speed such that an exact whole number of rotations are completed during said exposure time of said peripheral mechanism, thereby circularly symmetrically spreading and blurring the optical defects and the deviations of said at least one optical part of the optical device over a full 360 degrees circle, thereby achieving circular symmetry with respect to the optical defects and the deviations of said at least one optical part of the optical device during real time use of the optical device.

10. The method of claim 9, wherein said exact whole number is one, such that said exactly one rotation is completed during said exposure time of said peripheral mechanism of the optical device.

11. The method of claim 1, whereby the optical device is a folded optical device selected from the group consisting of a folded optical device for viewing and a folded optical device for projecting.

12. (Amended) The method of claim 1, wherein said optical rotation device comprises:

(i) a column for containing at least one optical part of the optical device;

(ii) a mount for holding said column, said mount including a sleeve;

(iii) a rotation mechanism for enabling rotation of said mount;

(iv) a rotation mechanism housing for housing said rotation mechanism;

(v) a motor for actuating rotation of said mount;

(vi) a transmission for enabling said motor to effect rotation of said mount; and

(vii) an adjustment mechanism for adjusting a position of said column relative to said mount.

13. The method of claim 12, where, in said optical rotation device, said adjustment mechanism features two sets of at least two screws for horizontally adjusting said position of said column along x-axis direction and along y-axis direction.

14. (Amended) The method of claim 1, wherein said optical rotation device comprises:

(i) a column for containing the at least one optical part of the optical device;

(ii) a mount for holding said column, said mount including a sleeve;

(iii) a ring for providing slight freedom of movement required to align said column with respect to said mount;

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(iv) a main rotation mechanism for enabling rotation of said mount;

(v) a main rotation mechanism housing for housing said main rotation mechanism;

(vi) a motor for actuating rotation of said mount;

(vii) a transmission for enabling said motor to effect rotation of said mount;

(viii) two self-aligned rotation mechanisms positioned at either side of said main rotation mechanism;

(ix) pre-loaded flexures for mounting, holding, and moving said two self-aligned rotation mechanisms; and

(x) two sets of actuators for actuating said pre-loaded flexures.

15. (Amended) The method of claim 14, wherein said ring is selected from the group consisting of metallic flexure and elastic material.

16. (Amended) The method of claim 14, wherein said actuators are piezo-electric transducers.

17. A method for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time use of an optical device, comprising the steps of:

(a) providing an optical rotation device for rotating at least one optical part of the optical device during real time use of the optical device;

(b) aligning an optical axis of said at least one optical part of the optical device with a rotation axis of said at least one optical part of the optical device, causing said at least one optical part of the optical device to be circularly symmetric with respect to said rotation axis; and

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(c) rotating said at least one optical part of the optical device about said rotation axis during real time use of the optical device, by activating and controlling said optical rotation device, thereby circularly symmetrically spreading and blurring about said rotation axis the optical defects and the deviations present in said at least one optical part of the optical device.

18. The method of claim 17, whereby said at least one optical part of the optical device is selected from the group consisting of the optical device in its entirety, at least one optical assembly of the optical device, and at least one optical element of the optical device.

19. The method of claim 17, whereby said at least one optical part of the optical device exhibits a property selected from the group consisting of rotation invariance and rotation variance.

20. The method of claim 18, wherein said optical element is selected from the group consisting of a window, a lens, a mirror, and a prism, wherein said lens includes a convex lens and a concave lens, said mirror includes a flat mirror and a parabolic mirror, and said prism includes a beam splitter and a dove prism.

21. The method of claim 17, whereby the step of aligning said optical axis of said at least one optical part of the optical device with said rotation axis is temporally performed selected from the group consisting of before said rotation, during said rotation, and, before and during said rotation, of said at least one optical part of the optical device.

22. The method of claim 17, wherein the step of aligning said optical axis of said at least one optical part with said rotation axis of the optical rotation device further includes:

(a) holding the at least one optical part by a peripheral structure of the at least one optical part, at two or more points along said peripheral structure, wherein points of projection on the optical axis of said two or more points are separated by corresponding distances along the optical axis; and

(b) moving said peripheral structure held by said two or more points, such that each of said points of projection on the optical axis is moved towards the rotation axis, such that the optical axis of the at least one optical part of the optical device becomes aligned and coincident with the rotation axis of the optical rotation device.

23. The method of claim 17, whereby the step of rotating said at least one optical part of the optical device is effected according to two rotation parameters, said two rotation parameters are rotation mode and rotation speed, said rotation mode is selected from the group consisting of discontinuous rotation and continuous rotation.

24. The method of claim 23, whereby said discontinuous rotation mode features the steps of:

(i) discontinuously rotating said at least one optical part of the device through a full circle of 360 degrees, with a whole number of stops selected from the group consisting of two and greater than two, at spaced angular intervals selected from the group consisting of unequally spaced and equally spaced, whereby at each said stop a new image is produced;

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(ii) performing image analysis on each said new image, thereby generating a set of analyzed images; and

(iii) numerically processing said set of analyzed images according to an algorithm, said algorithm including averaging, to produce a single combined image analysis result.

25. The method of claim 23, whereby said continuous rotation mode is selected from the group consisting of asynchronous rotation and synchronous rotation, with respect to exposure time of a peripheral mechanism of the optical device, said peripheral mechanism is selected from the group consisting of a viewing mechanism and a projecting mechanism, said viewing mechanism includes a camera, and said projecting mechanism includes a radiation source.

26. The method of claim 25, whereby said asynchronous rotation with respect to said exposure time of said peripheral mechanism features the step of rotating said at least one optical part of the optical device a number of rotations during said exposure time, said number of rotations is selected from the group consisting of a single rotation, a fraction of said single rotation, and a plurality of said single rotation, thereby spreading and blurring the optical defects and the deviations of said at least one optical part of the optical device over at least a portion of a circle.

27. The method of claim 25, whereby said synchronous rotation with respect to said exposure time of said peripheral mechanism features the step of rotating said at least one optical part of the optical device at a constant angular rotation speed such that an exact whole number of rotations are completed during said exposure time of said peripheral mechanism, thereby circularly symmetrically spreading and blurring the optical defects and the deviations of

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said at least one optical part of the optical device over a full 360 degrees circle, thereby achieving circular symmetry with respect to the optical defects and the deviations of said at least one optical part of the optical device during real time use of the optical device.

28. The method of claim 27, wherein said exact whole number is one, such that said exactly one rotation is completed during said exposure time of said peripheral mechanism of the optical device.

29. The method of claim 17, whereby the optical device is a folded optical device selected from the group consisting of a folded optical device for viewing and a folded optical device for projecting.

30. (Amended) The method of claim 17, wherein said optical rotation device comprises:

(i) a column for containing at least one optical part of the optical device;

(ii) a mount for holding said column, said mount including a sleeve;

(iii) a rotation mechanism for enabling rotation of said mount;

(iv) a rotation mechanism housing for housing said rotation mechanism;

(v) a motor for actuating rotation of said mount;

(vi) a transmission for enabling said motor to effect rotation of said mount; and

(vii) an adjustment mechanism for adjusting a position of said column relative to said mount.

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31. The method of claim 30, where, in said optical rotation device, said adjustment mechanism features two sets of at least two screws for horizontally adjusting said position of said column along x-axis direction and along y-axis direction.

32. (Amended) The method of claim 17, wherein said optical rotation device comprises:

(i) a column for containing the at least one optical part of the optical device;

(ii) a mount for holding said column, said mount including a sleeve;

(iii) a ring for providing slight freedom of movement required to align said column with respect to said mount;

(iv) a main rotation mechanism for enabling rotation of said mount;

(v) a main rotation mechanism housing for housing said main rotation mechanism;

(vi) a motor for actuating rotation of said mount;

(vii) a transmission for enabling said motor to effect rotation of said mount;

(viii) two self-aligned rotation mechanisms positioned at either side of said main rotation mechanism;

(ix) pre-loaded flexures for mounting, holding, and moving said two self-aligned rotation mechanisms; and

(x) two sets of actuators for actuating said pre-loaded flexures.

33. (Amended) The method of claim 32, wherein said ring is selected from the group consisting of metallic flexure and elastic material.

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34. (Amended) The method of claim 32, wherein said actuators are piezo-electric transducers.

35. A method for aligning the optical axis of at least one optical part of an optical device with a rotation axis of an optical rotation device used for rotating the at least one optical part of the optical device, comprising:

(a) holding the at least one optical part by a peripheral structure of the at least one optical part, at two or more points along said peripheral structure, wherein points of projection on the optical axis of said two or more points are separated by corresponding distances along the optical axis; and

(b) moving said peripheral structure held by said two or more points, such that each of said points of projection on the optical axis is moved towards the rotation axis, such that the optical axis of the at least one optical part of the optical device becomes aligned and coincident with the rotation axis of the optical rotation device.

36. The method of claim 35, whereby the optical device is a folded optical device selected from the group consisting of a folded optical device for viewing and a folded optical device for projecting.

37. A method for diminishing effects of optical defects and deviations during real time use of an optical device, the optical device including a light source, comprising the steps of:

(a) including at least one rotation variant optical element in the optical device, such that the light source generates light rays passing through said at least one rotation variant optical element;

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(b) providing an optical rotation device for rotating said at least one rotation variant optical element during real time use of the optical device; and

(c) rotating said at least one rotation variant optical element about a rotation axis during real time use of the optical device, by activating and controlling said optical rotation device, thereby spreading and blurring about said rotation axis the optical defects and the deviations present in said light rays of the light source passing through said at least one rotation variant optical element.

38. (Amended) The method of claim 37, wherein at least one of said at least one rotation variant optical element is a prism.

39. The method of claim 37, whereby the step of rotating said at least one rotation variant optical element of the optical device is effected according to two rotation parameters, said two rotation parameters are rotation mode and rotation speed, said rotation mode is selected from the group consisting of discontinuous rotation and continuous rotation.

40. The method of claim 37, further comprising the step of:

(c) aligning a position of at least one of said at least one rotation variant optical element with respect to said rotation axis, such that a high level of uniformity is achieved among said light rays of the light source, thereby diminishing the optical defects and deviations present in said light rays of the light source passing through said at least one rotation variant optical element.

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41. The method of claim 40, whereby the step of aligning said position of each of said at least one rotation variant optical element with said rotation axis is temporally performed selected from the group consisting of before said rotation, during said rotation, and, before and during said rotation, of said at least one rotation variant optical element.

42. The method of claim 37, whereby the optical device is a folded optical device selected from the group consisting of a folded optical device for viewing and a folded optical device for projecting.

43. (Amended) A method for diminishing effects of optical defects and deviations during real time use of an optical device, the optical device including a camera, comprising the steps of:

(a) including at least one additional camera in the optical device;

(b) positioning the camera and each of said at least one additional camera, such that the camera and said each of said at least one additional camera faces a different direction spaced apart at equally spaced angular intervals;

(c) including a rotation variant optical element in the optical device corresponding to each said at least one additional camera, said rotation variant optical element is selected from the group consisting of a part mirror and a beam splitter;

(d) positioning each said rotation variant optical element for diverting images toward each corresponding said at least one additional camera;

(e) recording a first image of an object by the camera, and recording another image of said object by said each of said at least one additional camera; and

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(f) processing said first image and said at least one additional image of said object by cancelling out distortion errors of said cameras, thereby obtaining image data corresponding to original orientation and magnitude of said object.

44. The method of claim 43, whereby the optical device is a folded optical device selected from the group consisting of a folded optical device for viewing and a folded optical device for projecting.

45. (Amended) An optical rotation device for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time use of an optical device, comprising:

(a) a column for containing at least one optical part of the optical device;

(b) a mount for holding said column, said mount including a sleeve;

(c) a rotation mechanism for enabling rotation of said mount;

(d) a rotation mechanism housing for housing said rotation mechanism;

(e) a motor for actuating rotation of said mount;

(f) a transmission for enabling said motor to effect rotation of said mount; and

(g) an adjustment mechanism for adjusting a position of said column relative to said mount.

46. The optical rotation device of claim 45, wherein said adjustment mechanism features two sets of at least two screws for horizontally adjusting said position of said column along x-axis direction and along y-axis direction.

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47. (Amended) An optical rotation device for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time use of an optical device, comprising:

(a) a column for containing at least one optical part of the optical device;

(b) a mount for holding said column, said mount including a sleeve;

(c) a ring for providing slight freedom of movement required to align said column with respect to said mount;

(d) a main rotation mechanism for enabling rotation of said mount;

(e) a main rotation mechanism housing for housing said main rotation mechanism;

(f) a motor for actuating rotation of said mount;

(g) a transmission for enabling said motor to effect rotation of said mount;

(h) two self-aligned rotation mechanisms positioned at either side of said main rotation mechanism;

(i) pre-loaded flexures for mounting, holding, and moving said two self-aligned rotation mechanisms; and

(j) two sets of actuators for actuating said pre-loaded flexures.

48. The optical rotation device of claim 47, wherein said ring is selected from the group consisting of metallic flexure and elastic material.

49. The optical rotation device of claim 47, wherein said actuators are piezo-electric transducers.

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50. A system for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time viewing by an optical device, comprising:

(a) said optical rotation device of claim 47;

(b) an electronic control unit for activating actuator mechanisms, thereby changing positions of said actuators, said actuator mechanisms include piezo-electric transducers;

(c) a camera for recording images viewed by the optical device;

(d) a digital frame grabber for capturing electronic images of said camera; and

(e) a computer for controlling said electronic control unit.

51. (Amended) A system for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time projecting by an optical device, comprising:

(a) said optical rotation device of claim 47;

(b) an electronic control unit for activating actuator mechanisms, thereby changing positions of said actuators, said actuator mechanisms include piezo-electric transducers;

(c) a light source for projecting an image through the optical device;

(d) a beam splitter placed in front of optics of the projecting optical device;

(e) a camera for viewing images projected by the optical device;

(f) a digital frame grabber for capturing electronic images of said camera; and

(g) a computer for controlling said electronic control unit.

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52. (New) The method of claim 37, wherein at least one of said at least one rotation variant optical element is a dove prism.

53. (New) A method for stabilizing the position of an optical axis of an optical device, comprising:

(a) providing an optical rotation device for rotating at least one optical part of the optical device during real time use of the optical device;

(b) providing a mechanism for aligning the optical axis of said at least one optical part of the optical device with a rotation axis of said at least one optical part of the optical device;

(c) aligning the optical axis of said at least one optical part of the optical device with said rotation axis; and

(d) rotating said at least one optical part of the optical device about said rotation axis during real time use of the optical device, by activating and controlling said optical rotation device, thereby producing a gyro effect for stabilizing the position of the optical axis of said at least one optical part of the optical device.

54. (New) The method of claim 53, whereby said at least one optical part of the optical device is selected from the group consisting of the optical device in its entirety, at least one optical assembly of the optical device, and at least one optical element of the optical device.

55. (New) The optical rotation device of claim 45, whereby said at least one optical part of the optical device is selected from the group consisting of the optical device in its entirety, at least one optical assembly of the optical device, and at least one optical element of the optical device.

56. (New) The optical rotation device of claim 45, whereby said at least one optical part of the optical device exhibits a property selected from the group consisting of rotation invariance and rotation variance.

57. (New) The optical rotation device of claim 55, wherein said optical element is selected from the group consisting of a window, a lens, a mirror, and a prism, wherein said lens includes a convex lens and a concave lens, said mirror includes a flat mirror, a part-mirror, and a parabolic mirror, and said prism includes a beam splitter and a dove prism.

58. (New) The optical rotation device of claim 45, wherein said motor the optical device functions as a rotor.

59. (New) The optical rotation device of claim 45, whereby rotating said at least one optical part of the optical device is effected according to two rotation parameters, said two rotation parameters are rotation mode and rotation speed, said rotation mode is selected from the group consisting of discontinuous rotation and continuous rotation.

60. (New) The optical rotation device of claim 47, whereby said at least one optical part of the optical device is selected from the group consisting of the optical device in its entirety, at least one optical assembly of the optical device, and at least one optical element of the optical device.

61. (New) The optical rotation device of claim 47, whereby said at least one optical part of the optical device exhibits a property selected from the group consisting of rotation invariance and rotation variance.

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62. (New) The optical rotation device of claim 60, wherein said optical element is selected from the group consisting of a window, a lens, a mirror, and a prism, wherein said lens includes a convex lens and a concave lens, said mirror includes a flat mirror, a part-mirror, and a parabolic mirror, and said prism includes a beam splitter and a dove prism.

63. (New) The optical rotation device of claim 47, wherein said motor the optical device functions as a rotor.

64. (New) The optical rotation device of claim 47, whereby rotating said at least one optical part of the optical device is effected according to two rotation parameters, said two rotation parameters are rotation mode and rotation speed, said rotation mode is selected from the group consisting of discontinuous rotation and continuous rotation.

65. (New) A system for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time viewing by an optical device, comprising:

(a) said optical rotation device of claim 45; and
(b) a camera for recording images viewed by the optical device.

66. (New) A system for simultaneously achieving circular symmetry and diminishing effects of optical defects and deviations during real time projecting by an optical device, comprising:

(a) said optical rotation device of claim 45; and
(b) a light source for projecting an image through the optical device.

67. (New) The system of claim 50, whereby said computer features a software program for analyzing said captured electronic images for sharpness, for effecting said changing said positions of said actuators of said optical rotation device until a sharpest said electronic image is obtained, and for controlling speed of said motor of said optical rotation device.

68. (New) The system of claim 51, whereby said computer features a software program for analyzing said captured electronic images for sharpness, for effecting said changing said positions of said actuators of said optical rotation device until a sharpest said electronic image is obtained, and for controlling speed of said motor of said optical rotation device.